Clayton Chemical
LPC# 1631210004
St Clair County
SF/HRS

CERCLA Site Reassessment

Prepared by:
Office of Site Evaluation
Division of Remediation Management
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SIGNATURE PAGE

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SITE REASSESSMENT

For:

Clayton Chemical
Sauget, Illinois

LPC 1631210004
ILD 066918327

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

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Section 1.0 Introduction

On January 7, 2015, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation was tasked by the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Site Reassessment (SR) at the Clayton Chemical site in Sauget, St. Claire County, Illinois. Clayton Chemical is located at 1 Mobile Avenue, Sauget, IL 62206.

The Site Reassessment is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund. Current U.S. EPA policy stipulates that a Site Reassessment be conducted to determine the current status of the Clayton Chemical Site. The Site Reassessment will consist of an evaluation of recent information to determine if further Superfund investigations are warranted. The Site Reassessment will supplement previous work, and is not intended to replace previous CERCLA assessments.

The Site Reassessment is designed to evaluate recent information that will help determine if the site qualifies for possible inclusion on the National Priorities List (NPL), or should receive a No Further Remedial Action Planned (NFRAP) designation. At the conclusion of the reassessment process Illinois EPA will recommend that the site be given a NFRAP designation, receive further Superfund investigations, or referred to another state or federal cleanup program.

The Site Reassessment Report will describe current site conditions and illustrate how the site has changed since the last CERCLA investigation in 2002. This report will contain a summary of existing information that will include site history, current site conditions, evaluate past analytical data, and evaluate past remedial activities. The Site Reassessment will also support emergency response or time-critical removal activities if they are warranted.

Section 2.0 Site Description and History

2.1 Site Description

The Clayton Chemical site is located at 1 Mobile Street, Sauget, IL. The site is part of a property that consists of approximately 7.5 acres and is located in Section 27, Township 2 North, and Range 10 West of the third principal meridian. The coordinates at the entrance to the property is 38.597568 latitude and -90.182554 longitude. To the east of the property is American Bottoms Road (Figure 2). Located to the north is the P-Chem wastewater treatment facility and to the west is the Veolia Environmental Services. The American Bottoms wastewater treatment plant is located to the south of Clayton Chemical.

The site is approximately one-quarter mile east of the Mississippi River in an area known as the "American Bottoms" flood plain. The floodplain is relatively flat and generally slopes from north to south and from east to west. The site is located in a heavily industrialized and commercial use area.

The American Bottoms are underlain by unconsolidated valley fill. The valley fill is composed of alluvium, known as the Cahokia Alluvium, which overlies a unit of glacial material known as the Henry Formation. The Cahokia Alluvium is approximately 40 feet thick and consists of unconsolidated fine-grained material with some local sand and clay lenses. The alluvial deposits unconformably overlie the Henry Formation, which is composed of medium to coarse sand and gravel that increases in grain size with depth. This unit is approximately 95 feet thick and generally becomes thinner with increasing distance from the Mississippi River. The valley fill throughout the floodplain is underlain by a bedrock system of Mississippian and Pennsylvanian age. The bedrock consists primarily of limestone and dolomite with some sandstone and shale, and is older in the central and western sections of the American Bottoms.

Two types of water bearing formations exist in the American Bottoms: unconsolidated and consolidated. The unconsolidated formation are those the lie between the ground surface and the bedrock-grave interface. The thickness of the unconsolidated formation varies throughout the area, but is typically estimated to be approximately 100 feet. Finer-grained sediments generally dominate at the ground surface and become coarser and more permeable with depth, creating semi-confined conditions within the aquifer. The consolidated formations are deep bedrock units of limestone and dolomite that exhibit low permeability and are not considered to be a significant source for groundwater in the area.

Historically, groundwater from the American Bottoms aquifer was a major source of water for the area and was used for industrial, public, and irrigation purposes. Presently, drinking water is obtained from Illinois American Water Company, which obtains its water from a surface water intake located approximately three miles upstream of Clayton Chemical in the Mississippi River. The nearest surface water is the Mississippi River which is located approximately 1500 feet to the west of Clayton Chemical. The population of Sauget, IL according to the 2010 census is 159 people and the nearest resident to Clayton Chemical is at least ½ mile away.

2.2 Site History

Prior to 1961, the property was occupied and operated by Gulf Mobile & Ohio Railroad as a railroad maintenance facility and railroad related equipment storage complex. Clayton Chemical was a commercial solvent recycler and hazardous waste fuel blender since the early 1960's. From 1961-1998, the primary operations involved the recovery/recycling of waste oils waste solvents under three different operating entities. Clayton Chemical was involved from 1961-1980 and 1983-1996. Trade Waste Incineration was active from 1980-1983 and Resource Recovery Group from 1996-1998.

Clayton Chemical accepted waste in drums and tanker trucks for processing. Regulated units associated with these activities were stored in containers and storage tanks. The facility received and stored F-Solvents and ignitable waste (Appendix A). Wastes were received at Clayton Chemical either in bulk or containers. Bulk materials arrived by truck and were unloaded into hazardous waste storage tanks. The spent solvents went through a distillation process and the recycled solvents were sold to industries. Residual bottom sludge from the solvent distillation process was mixed with chemicals and sold for use in the pavement industry (CERCLE Combined Assessment 2002).

Resource Recovery Group (RRG) shut down its primary waste activities in August, 1998 as directed by a court order. Several above ground storage tanks contained liquid and sludge waste materials. The drum handling building also contained drummed waste materials at the time site operations were suspended. Inbound shipments of waste were not accepted at the facility although outbound waste shipments were still allowed.

In April 1994 Clayton Chemical entered into a Resource Conservation and Recovery Act (RCRA) Closure proceeding. The closure document stated that a number of tanks associated with the property were required to go through the closure process stated in the RCRA Closure document. This involved the remediation of many tanks located on the property. In August 1998, St Claire County Circuit Court ordered Clayton Chemical to cease operations due to the ability to provide financial assurance. Although RRG was the operating name of the facility, Clayton Chemical still owned the property.

On August 27, 1998 an Order was entered in St. Claire County Circuit Court requiring the facility to cease operations until the required financial assurance was posted. As a result of that action, the facility closed and no personnel have been on-site since 1998. This resulted in U.S. EPA obtaining the Administrative Order to address the waste left at the facility.

In 2000, the State of Illinois filed a lawsuit against Clayton Chemical (RRG) for refusal to comply with a permit, refusal to provide financial and liability assurance, refusal to undertake corrective action, operational violations, land ban violations, waste oil violations, and a number of similar violations.

2.3 CERCLA Investigative History

The Clayton Chemical facility was added to SEMS in June1, 1980. It is unknown at this time what prompted the discovery and listing on CERCLIS. In 1985, a Preliminary Assessment (PA) was conducted by Illinois EPA. It was discovered that Clayton Chemical had leased out the property to entities that operated hazardous waste incinerators and that potential soil contamination would appear inevitable with the type of industry that was conducted on this property. The site was assigned a medium priority at the time of the investigation.

On June 5-7, 2001, the Illinois EPA Site Assessment Unit assisted the U.S. EPA and the Superfund Technical Assessment and Response Team (START) with site assessment of the Clayton Chemical facility located at 1 Mobile Street, Sauget, IL in St. Claire County. The nature of the investigation was to determine if an immediate removal at the facility was warranted. This process was determined in a CERCLA Combined Assessment. The assessment consisted of soil and groundwater samples. A backhoe was used onsite to collect the soil samples and a Geoprobe was used to collect the ground water samples. There were 22 soil samples collected from a depth of surface to 12 feet below ground surface. The majority of the topsoil at Clayton Chemical was black cinders, usually three inches deep. The soil possessed an assortment of chemicals and odors, which had emerged from the ground when soil samplings and soil borings were collected. Results of the soil investigation revealed high levels of tetrachloroethylene, trichloroethylene, PCBs, benzene, and lead to name a few.

There were 10 ground water samples collected throughout the site. The depths varied between 8 to 16 feet below ground surface. Some sampling locations had odors of petroleum, and soil had an oily appearance. The ground water samples were analyzed for RCRA metals, PCBs, pH, total cyanide, and VOCs. The results for the groundwater did document a release to groundwater and the compounds that were above three times background were tetrachloroethylene, trichloroethylene, and vinyl chloride to name a few. Sauget has a city ordinance that prohibits use of groundwater as potable water and local wells are used for irrigation purposes only.

Also in 2001 during the same time as the Illinois EPA investigation, a Removal Site Evaluation was conducted by Roy F. Weston on behalf of the U.S. EPA. The Removal Site Evaluation included the collection of nine soil/sediment samples. The Removal Site Evaluation was recommended on February 22, 2001 that the site was a candidate for a time critical removal.

Section 3.0 Other Cleanup Authorities and Activities

This property was recommended for a time critical removal during the Removal Site Evaluation and the Combined Assessment. In August, 2003 the U.S. EPA initiated a TCRA from the Clayton Chemical/RRG site. The description of the threat consisted of an unspecified amount of liquid hazardous and nonhazardous substances on-site in a multitude of above ground storage tanks and associated piping, 55-gallon drums, and miscellaneous containers. Sample collection of above ground storage tanks began on August 6, 2003. All drums and miscellaneous containers were opened, color coded for liquids or solids contents identification. All empty drums were staged adjacent to the former waste drum processing/storage building. Drum sampling activities were completed on August 19, 2003. Non-hazardous liquid waste

shipments were initiated on September 3, 2003 and hazardous liquid waste shipments were initiated on September 27, 2003. All 7 waste storage tanks and associated piping had been emptied of liquid hazardous substances and cleaned with a water rinse prior to January 9, 2004. A total of 810,885 gallons of liquid hazardous waste was shipped off-site. The removal was completed on May 17, 2004.

On October 27, 2005, the U.S. EPA obtained from the potentially responsible parties Clayton Chemical/RRG, a signed Administrative Settlement Agreement and Order on Consent for the second phase of the removal action at the facility. The removal actions addressed the remaining sludge/waste in the tanks, all containerized waste that was not removed during the liquids removal action conducted in 2003. All tanks were addressed during this phase of the removal as well as any contaminated soil. On December 5, 2005 the removal and mobilization took place at the site. Asbestos was removed during the first two weeks and demolition of empty tanks also took place the first week.

During the week of February 3, 2006, as part of the removal a total of 75 tons of fly ash was delivered to the site for tank product solidification and disposal. Dust generated from the fly ash caused a nuisance and therefore bottom ash was used instead. Sixty total loads of non-hazardous waste was ransported off-site as well as 11 total loads of scrap metal. The remaining structures except the office buildings were demolished and removed the week of March 14, 2006. Waste excavation was also taking place around the property from pits with depths up to five feet. The excavated soil was stockpiled on-site and covered. It was found that the excavated soil contained PCBs. The soil was transported to an acceptable landfill over the course of the removal. Also during the removal, approximately 120 55 gallon drum were discovered buried near a loading dock and covered with concrete. The drums were analyzed for their contents and then properly removed. Also discovered on-site was a 4 foot by 120 foot buried trench that contained oil material. The material was pumped out and disposed of and the

trench was backfilled with concrete. All major removal activities were competed in December 2007.

On March 5, 2008, U.S. EPA executed a Unilateral Administrative Order. The Order identified 11 potentially responsible parties to cap a portion of the site that still contained impacted soil areas. The cap covers approximately 1.6 acres of the site. The cap consists of structural fill, a minimum of 1 foot of compacted clay, a geosynthetic clay liner, and 40 ml linear of Low Density Polyethylene Liner and a final protective cover. The final cover consists of a geocomposite drainage layer, 24" of protective soil and 6" of vegetative cover. The cap was completed in July 2009.

To the west of Clayton Chemical is Site R which is part of the Sauget 2 National Priorities Listing (NPL) site. Part of the remediation process of this NPL site was the construction of The Groundwater Migration Control System (GMCS) also known as a barrier wall. This wall was constructed between November 2002 and June 2005. The GMCS is an automated system which is designed to control the flow of groundwater at Site R. The system consists of a barrier wall and an automated pumping system which pumps groundwater from three extraction wells at the site and discharges it to the P-Chem plant. Clayton Chemical is not part of the Site R site but the GMCS does collect groundwater flow from the Clayton Chemical site since groundwater flow is to the west towards the Mississippi River. URS Corporation Project Manager and Solutia Project Manager are responsible for the operation and maintenance of the Site R Groundwater Migration Control System. Solutia is the potential responsible party (PRP).

Section 4.0 Pathway Discussion

4.1 Groundwater Migration Pathway

The American Bottoms are underlain by unconsolidated valley fill. The valley fill is composed of recent alluvium, known as Cahokia Alluvium. The Cahokia Alluvium is approximately 40 feet thick and consists of unconsolidated, poorly sorted, fine-grained material with some local sand and clay lenses. The site is generally composed of black cinders from one to three inches in depth, then changing to brown clay to a depth of about 3 feet, then to an alluvium with lenses of gray clay to a depth of approximately 40 feet.

Groundwater is not used for drinking purposes within four miles of the Clayton Chemical site. The drinking water for the area is supplied by Illinois American Water located in East St. Louis. Illinois American Water has an intake located in the Mississippi River approximately 3 miles upstream of Sauget, IL. The city of Sauget has a groundwater ordinance that prohibits the use of groundwater for drinking water purposes. There are some registered ISGS wells within a four mile radius but are only used for irrigation purposes.

Groundwater wells located within a 4-Mile radius

Distance	ISGS well	Population
0-1/4	2	0
¼-1/2	10	0
½-1 mile	32	2
1-2 mile	170	101
2-3 mile	37	188
3-4 mile	103	295

ISGS well information from ArcView well data

4.2 Surface Water Pathway

Based on site drainage observed during the Combined Assessment, it appears that the surface water drains toward the eastern portion of the site towards the Mississippi River. This is due to the construction of the level to the west of the site. Surface water ultimately drains to the American Bottoms Regional Wastewater Treatment Facility, located directly south of Clayton Chemical.

Based upon Illinois EPA data, there ae no known surface water intakes within fifteen miles downstream of the site. The nearest downstream surface-water intake on the Illinois side of the Mississippi River is located at river mile 110, approximately 64 miles south of the site. This intake supplies drinking water to the residents of the Town of Chester and surrounding area in Randolph County, Illinois.

4.3 Soil Exposure

The Clayton Chemical site is located in an industrial area of Sauget. There are no daycare facilities, school or residents within a half a mile of the site. The site is surrounded by a fence with a locked gate. In 2008 a time critical removal was completed on the site. All waste and above ground storage tanks were removed from the site as well as some contaminated soil. A final cover was constructed over an approximately 1.5 acre portion of the site where contaminated soil remained. Population data for a four mile radius around Clayton Chemical is included in the following table.

Population Distribution

Distance	Population
0-1/4 mile	0
¼-1/2 mile	0
½-1 mile	2
1-2 mile	101
2-3 mile	188
3- 4 mile	295

2010 Census data using Arcview population data

4.4 Air Pathway

There have been no documented reports, records or complaints of air releases from the site. There have been no air samples collected in the past and is not thought to be of concern at this time.

5.0 Summary and Conclusion

Clayton Chemical was originally placed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) now known as Superfund Enterprise Management System (SEMS) on June 1, 1980. Past investigations have identified contamination associated with Clayton Chemical and therefore an Immediate Removal was conducted at the Clayton Chemical property to alleviate contamination issues. The Immediate Removal Assessments was started in August 2003 and finished in July 2009.

The Immediate Removal addressed above ground storage tanks, buried drums and contaminated soil. The Clayton Chemical property is located in a heavily industrialized area of Sauget, IL. A large portion of the surrounding properties are associated with two NPL sites, Sauget 1 and Sauget 2 (Figure 3). A significant portion of the ongoing cleanup measures taking place at the numerous sites in Sauget 2 also address residual potential groundwater contamination that may be associated with Clayton Chemical. The barrier wall captures contaminated groundwater that flows towards the Mississippi River and sends it to the treatment plants prior to being emptied into the Mississippi River. Due to the Immediate Removal and ongoing monitoring of the barrier wall, it is thought that all pathways have been addressed and no further remedial action would be needed at the Clayton Chemical site.

5.0 References

- Roy F. Weston, Removal Assessment Report. September, 2001. 320 pages.
- Illinois EPA, Combined Assessment. June 22, 2002. 54 pages.
- URS Corporation, Groundwater Migration Control System Operation and Maintenance Plan, May 13, 2013.

FIGURES

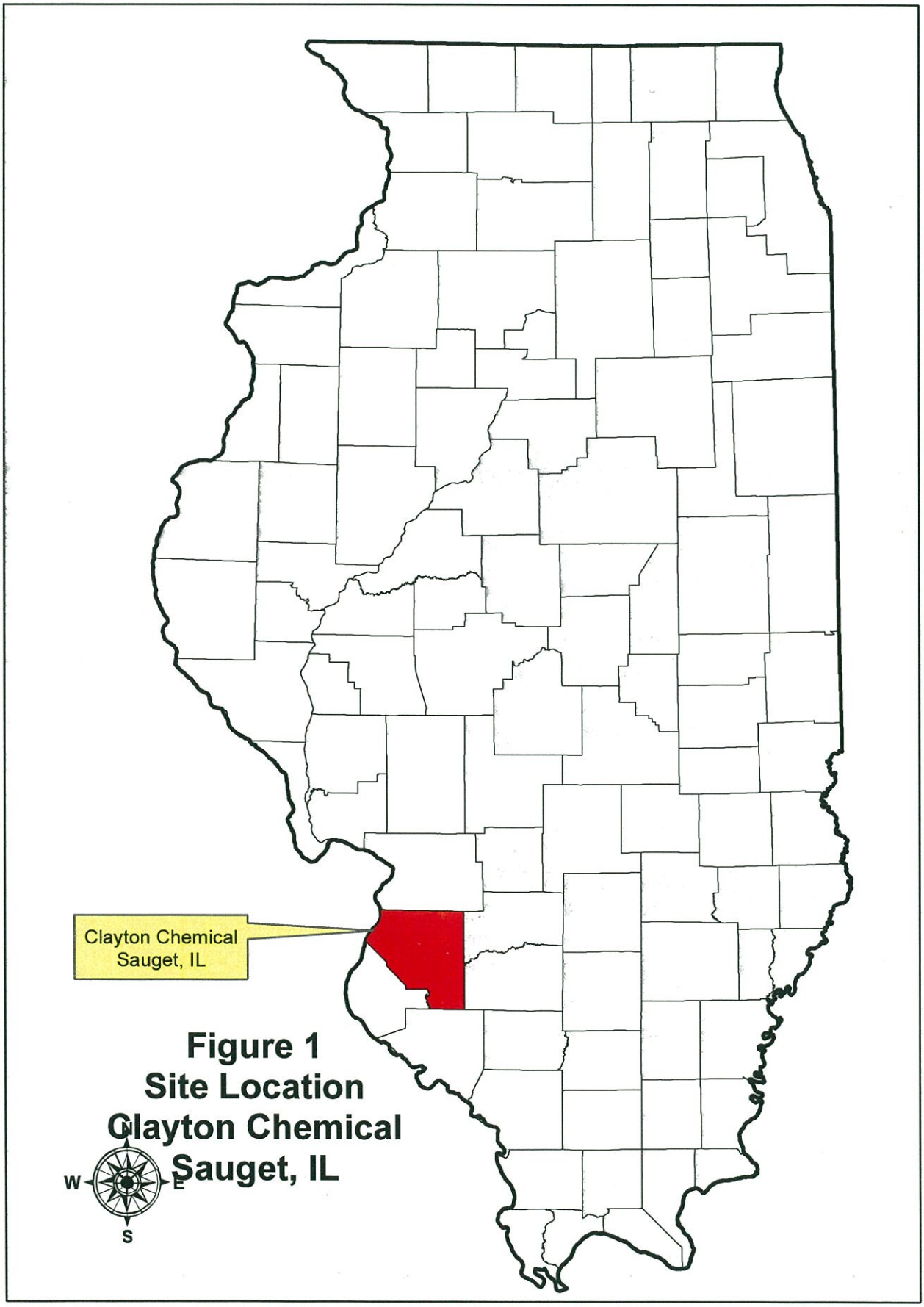


Figure 1
Site Location
Clayton Chemical
Sauget, IL

Figure 2
Clayton Chemical
Sauget, IL

File: P:\ENVIRONMENTAL\SAUGET AREA 1 RI REPORT\FIG 1-2 SITE LOCATION MAP.DWG Last edited: AUG. 24, 09 @ 3:52 p.m. by: david_deguire

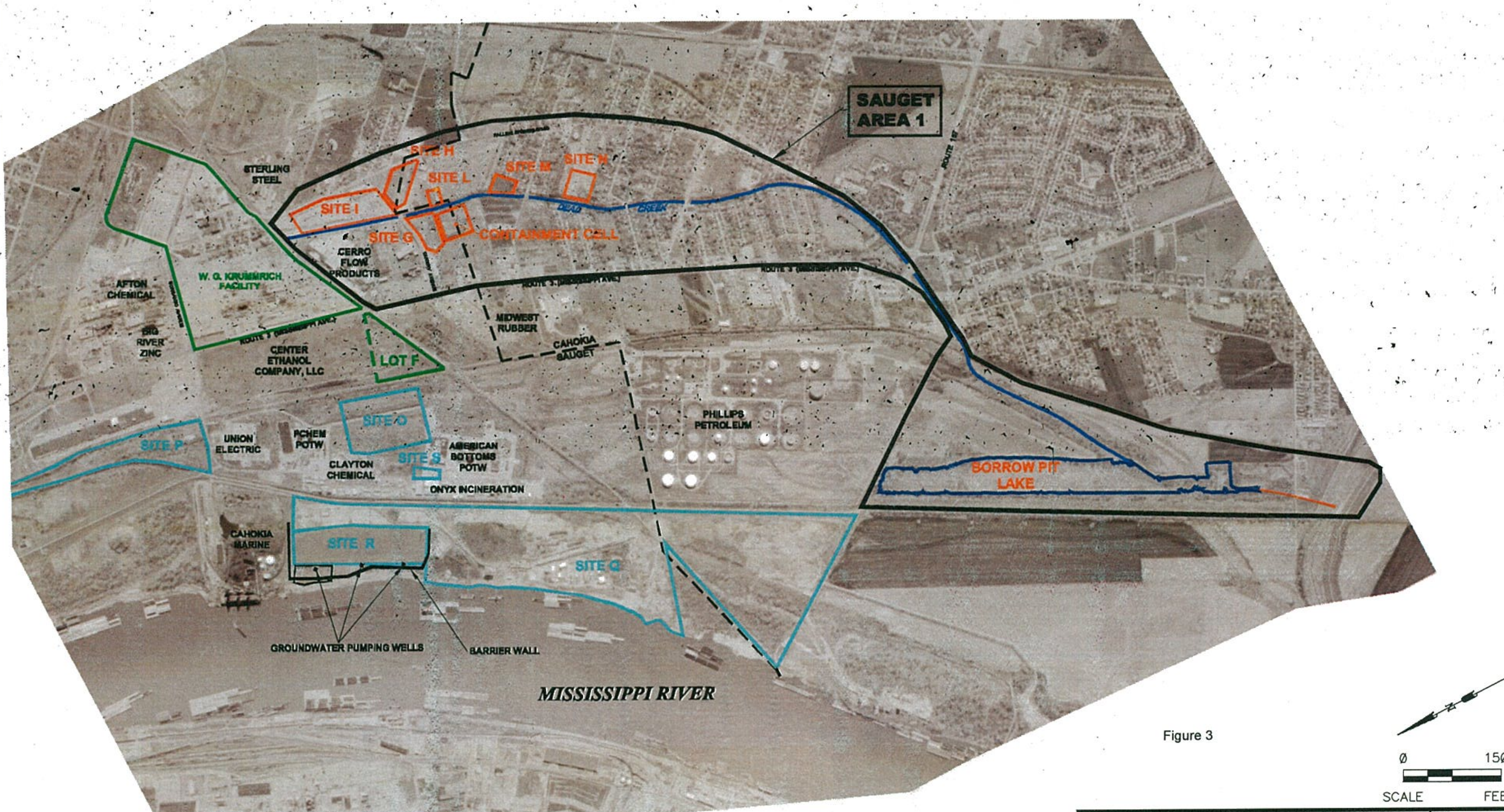


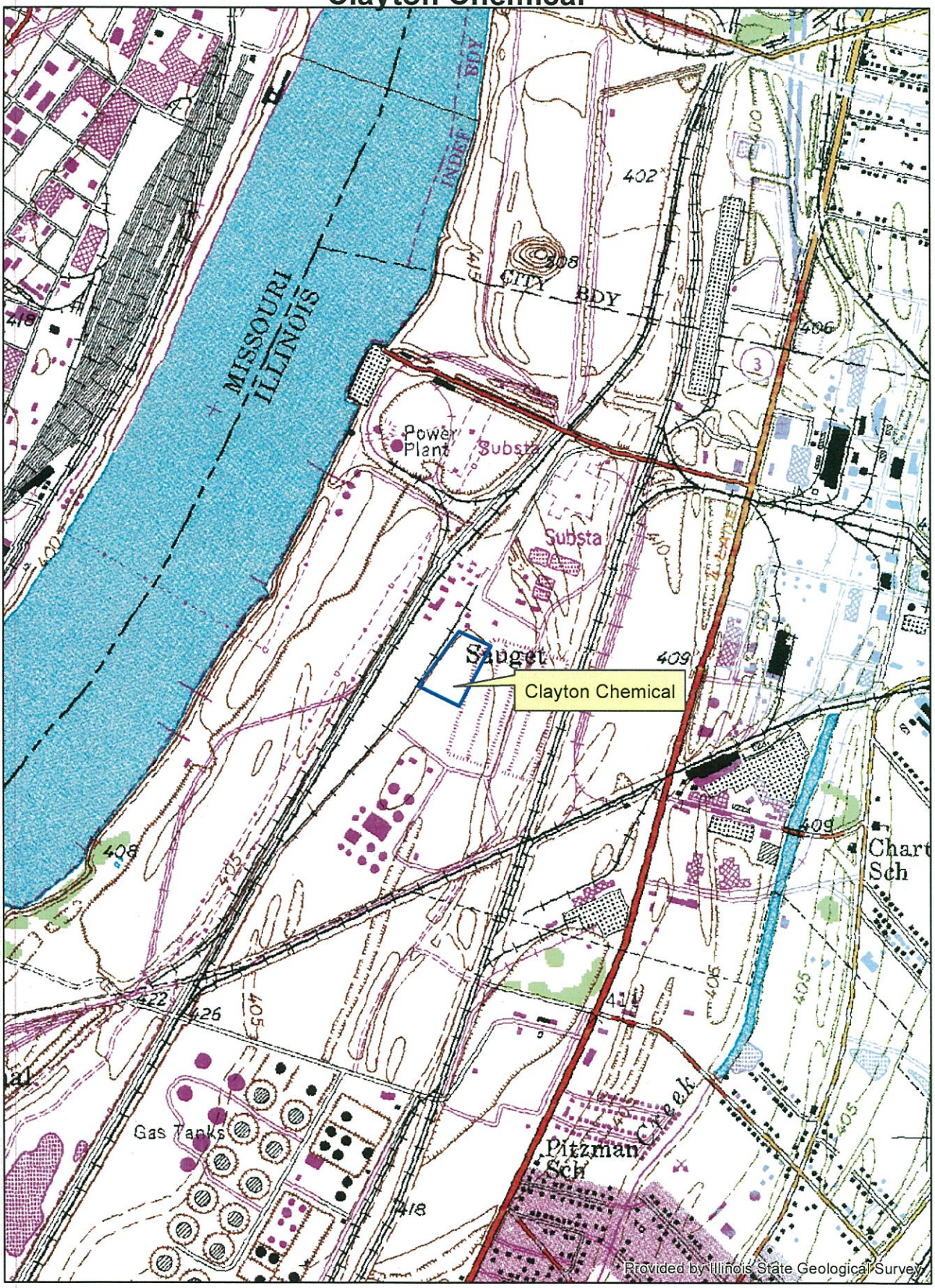
Figure 3

LEGEND

- SAUGET AREA 1 SITE
- DEAD CREEK
- W.G. KRUMMRICH FACILITY
- SAUGET AREA 2 SITE

SAUGET AREA 1 REMEDIAL INVESTIGATION REPORT SAUGET AND CAHOKIA, ILLINOIS		PROJECT NO. 21562123
URS		
DRN. BY:lrm 9/4/09 DSGN. BY:ss CHKD. BY:	Site Location Map	FIG. NO. 1-2

Figure 4
Topo Map
Clayton Chemical



APPENDIX

A

Spent Solvents
(F-Listed Solvents)

F001 Spent halogenated solvents used in degreasing:

- Carbon tetrachloride
- Chlorinated fluorocarbons
- Methylene chloride
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- Trichloroethylene

F002 Spent halogenated solvents:

- Chlorobenzene
- Methylene chloride
- ortho-Dichlorobenzene
- Tetrachloroethylene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethylene
- Trichlorofluoromethane
- 1,1,2-Trichloro-1,2,2-trifluoroethane

F003 Spent non-halogenated solvents:

- Acetone
- Cyclohexanone
- Ethyl acetate
- Ethyl benzene
- Ethyl ether
- Methanol
- Methyl isobutyl ketone (MIBK)
- n-Butyl alcohol
- Xylene

F004 Spent non-halogenated solvents:

- Cresols
- Cresylic acid
- Nitrobenzene

F005 Spent non-halogenated solvents:

- Benzene
- Carbon disulfide
- 2-Ethoxyethanol
- Isobutyl alcohol
- Methyl ethyl ketone (MEK)
- 2-Nitropropane
- Pyridine
- Toluene